

## BLACKWATER BOTTOMLAND HARDWOODS (HIGH SUBTYPE)

**Concept:** Blackwater Bottomland Hardwoods are forests of blackwater river terraces and floodplain ridges, generally dominated by wetland oaks and lacking a significant component of *Betula nigra* or *Planera aquatica*. The High Subtype covers higher examples which lack significant *Quercus lyrata* and which often have a significant component of *Pinus taeda* along with bottomland oaks.

**Distinguishing Features:** Blackwater Bottomland Hardwoods are distinguished by dominance or codominance by bottomland oaks on blackwater river floodplains, in sites where overbank flooding is, or has been, a significant ecological influence. They are distinguished from Brownwater Bottomland Hardwoods by more acid-tolerant composition and absence of brownwater species such as *Quercus pagoda*, *Fraxinus pennsylvanica*, *Acer negundo*, and *Asimina triloba*. Most of the plants typical of Blackwater Bottomland Hardwoods are also present in Brownwater Bottomland Hardwoods, but the more acid-tolerant species, such as *Persea palustris*, *Magnolia virginiana*, *Lyonia lucida*, and *Cyrilla racemiflora*, are not, and *Clethra alnifolia* is more likely to be in the blackwater type. Nonriverine Wet Hardwood Forests may share some of these acid-tolerant undergrowth plants but generally are dominated by *Quercus pagoda*, *Quercus michauxii*, or *Liquidambar styraciflua*. Blackwater Bottomland Hardwoods are distinguished from Blackwater Levee/Bar Forest by lacking appreciable numbers of *Betula nigra* or *Planera aquatica*.

The High Subtype is distinguished from the Low Subtype and Swamp Transition Subtype by the absence or limited abundance of *Quercus lyrata*, *Nyssa biflora*, and *Taxodium distichum*. It is distinguished from the Evergreen Subtype by the absence of *Quercus virginiana* and the absence or near absence of *Chamaecyparis thyoides*.

**Synonyms:** *Pinus taeda* - *Quercus laurifolia* / *Vaccinium elliottii* - *Arundinaria gigantea* Forest (CEGL004736).

Ecological Systems: Atlantic Coastal Plain Small Blackwater River Floodplain Forest (CES203.249).

**Sites:** Blackwater Bottomland Hardwoods occur on large blackwater river floodplains. The High Subtype occurs on the highest portions of the floodplain, on terraces and on the highest ridges in scrollwork ridge-and-swale systems. In contrast to brownwater rivers, where levee forests separate bottomland hardwoods from the river, Blackwater Bottomland Hardwoods often border the channel.

**Soils:** Blackwater Bottomland Hardwoods generally have sandy alluvial soils. Johnston (Cumulic Humaquept) is the only frequently mapped soil series, but Bibb (Typic Fluvaquent), Pactolus, or Chipley (Aquic Quartzipsamment) are sometimes mapped.

**Hydrology:** The High Subtype is intermittently flooded. Flooding probably occurs only in the highest floods and only for relatively brief periods. Soils may also sometimes be saturated by floods that don't inundate them. When rivers are not in flood, the sites are well drained.

**Vegetation:** The High Subtype is a forest typically dominated by *Quercus laurifolia*. *Pinus taeda* is frequent and may codominate locally. *Liquidambar styraciflua*, *Acer rubrum* (var. *trilobum*?), *Quercus nigra*, and, less frequently, *Quercus michauxii* are often present. The understory is usually dominated by *Ilex opaca*, *Carpinus caroliniana*, or *Persea palustris*, along with canopy species. *Magnolia virginiana* and *Diospyros virginiana* are also fairly frequent. The shrub layer is usually moderate to fairly dense. *Vaccinium elliotii* or *Arundinaria tecta* dominate patches. Other shrubs may include *Cyrilla racemiflora*, *Clethra alnifolia*, *Eubotrys racemosa*, or *Hypericum hypericoides*. Woody vines are frequent and maybe be locally abundant, especially *Smilax rotundifolia*, *Muscadinia rotundifolia*, and *Toxicodendron radicans*, but also fairly frequently *Gelsemium sempervirens*, *Campsis radicans*, *Smilax laurifolia*, and other *Smilax* spp. The herb layer usually is sparse. *Mitchella repens* or *Chasmanthium laxum* may dominate patches, and *Lorinseria areolata*, *Osmunda spectabilis*, *Osmundastrum cinnamomeum*, *Dichantherium* spp., and *Elephantopus nudatus* may be scattered. *Tillandsia usneoides* and *Phoradendron serotinum* may be abundant as epiphytes. In a few places, blackwater bottomlands on riverbanks, where they are well drained when the river is low, may support some upland species in combination with the floodplain species. *Vaccinium arboreum* is the most frequent of these, but occasionally *Pteridium aquilinum*, *Carya pallida* or *Quercus stellata* may occur.

**Range and Abundance:** Ranked G3G4. In North Carolina, this community is well developed only on the large blackwater rivers such as the Lumber, Black, and Northeast Cape Fear. It was once extensive in these areas, but as the driest of floodplain communities it is the most frequently altered by logging. On the Waccamaw River, it is largely replaced by the Evergreen Subtype. The community also occurs in South Carolina. The synonymized NVC association occurs in Georgia and potentially in Virginia and Florida.

**Associations and Patterns:** The High Subtype occurs as part of a floodplain mosaic with other subtypes and with Cypress–Gum Swamp.

**Variation:** No variants are recognized. Variation within a site often is greater than among sites. The presence of *Quercus michauxii* is infrequent and may be worth investigating as indicative of different ecological conditions.

**Dynamics:** Dynamics are similar to other floodplain forests. While nutrient input from blackwater flooding is small compared to brownwater, it presumably is an important subsidy and contributes to making the community more productive than other forests of sandy soils.

The High Subtype is dry enough of the time that fire is a possibility, and pines, when present, would provide flammable litter. However, individual patches are small and are separated by vegetation that is less flammable. The lack of a continuous flammable landscape presumably makes natural fire a rare event.

The mechanism for coexistence of shade-intolerant pines with more shade-tolerant oaks in the High Subtype and Evergreen Subtype, as in maritime forests and a few other communities, is not well known.

**Comments:** Plot data for this subtype are scarce or are not recognized as this community. Most of the above vegetation description is based on site reports.

**Rare species:**

Vascular plants: *Ditrysinia fruticosa*.

Vertebrate animals: *Myotis rafinesquii* and other bats may use these forests.

**References:**